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ACCEPTABILITY OF PrEP UPTAKE AMONG RACIALLY/ ETHNICALLY DIVERSE YOUNG MEN WHO HAVE SEX WITH MEN: THE P18 STUDY

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Abstract

Pre-exposure prophylaxis (PrEP) is considered an effective biomedical approach for HIV prevention. However, there is limited understanding of PrEP uptake among racially/ethnically and socioeconomically diverse young men who have sex with men (YMSM). This study examined attitudes and perceptions toward PrEP uptake among YMSM by conducting semistructured interviews with a sample ($N = 100$) of YMSM in New York City. Thematic analysis was employed to explore key issues related to attitudes and perceptions toward PrEP utilization. Findings suggest that self-perceived risk for HIV transmission, enjoying unprotected sex, and being in a romantic relationship were associated with PrEP uptake. The most prominent barriers to PrEP uptake included costs, adherence regimen, and access. In summary, these findings underscore the importance of addressing behavioral and structural factors in maximizing the effectiveness of PrEP. In addition, PrEP implementation programs ought to consider the role of social and structural challenges to PrEP uptake and adherence among YMSM.

Pre-exposure prophylaxis (PrEP) is the latest biomedical approach to HIV prevention where individuals at risk for HIV regularly use an antiretroviral agent to reduce the risk of seroconversion (Centers for Disease Control and Prevention [CDC], 2012a; Gostin & Kim, 2011). Findings from the first phase III trial, the Pre-exposure Prophylaxis Initiative (iPrEx) study, indicated that a daily pill of oral tenofovir disoproxil fumarate/emtricitabine (FTC) (trade name Truvada) as PrEP reduces the risk of HIV infection among men who have sex with men (MSM) by 44% and among participants with greater adherence to the daily regimen by 74% (Grant et al., 2010). Among participants with detectable drug levels in plasma, PrEP reduced the risk of HIV infection by 92%. Consequently, in July 2012, the Food and Drug Administration (FDA) approved PrEP for reduction of HIV risk among adults, including both heterosexuals and MSM.

The growing support for PrEP as a prevention tool has prompted a number of studies evaluating the intent to use PrEP; the majority of these studies were conducted among adult MSM in the United States (Barash & Golden, 2010; Brooks et al., 2012; Mimiaga, Case, Johnson, Safren, & Mayer, 2009). One such study, conducted by Mimiaga and colleagues (2009), found that MSM with lower levels of education as well as lower levels of prior knowledge of PrEP prior to study entry were more willing to use PrEP upon receiving information about the potential role of PrEP as an HIV prevention option. Moreover, a large proportion (74%) of participants in this study reported intending to use PrEP. Factors associated with intent to use PrEP included income, potential side effects of PrEP use, and costs. A more recent study by Brooks and colleagues (2012) also reported similar levels (80%) of willingness to use PrEP. However, in addition to the barriers posed in the Mimiaga et al. study, participants in the Brooks et al. (2012) study also cited potential barriers associated with missing doses, intermittent use, discontinuing PrEP, long-term use, and issues of access.

Although these findings may aid in understanding the uptake and utilization of PrEP among adult MSM, their relevance to the realities of young men who have sex with men (YMSM) is not directly transferable. This sentiment is best summarized in a recent commentary by Pace, Siberry, Hazra, and Kapogiannis (2013): “Extrapolation from studies of PrEP in white, adult MSM may not be appropriate for predicting PrEP effectiveness in YMSM and BMSM [young black MSM]. Sociocultural, hormonal and many other differences require studies specifically in this population” (p. 1151). Despite this call to action, only a handful of studies have assessed awareness of and barriers to PrEP use among YMSM. One such study by Bauermeister, Meanley, Pingel, Soler, and Harper (2013) noted low levels (27%) of awareness of PrEP and lower likelihood of use due to lack of insurance. Echoing these findings, a study by Mustanski, Johnson, Garofalo, Ryan, and Birkett (2013) also noted only moderate support for PrEP among YMSM. In addition, both studies reported that likelihood of use was related to lower likelihood of side effects and medication burden.

In addition to understanding factors associated with PrEP uptake, attitudes toward long-term utilization warrant further exploration among YMSM for a number of reasons. First, long-term utilization of PrEP involves long-term adherence to a medication regimen that may be developmentally challenging for adolescents and young adults who may lack the requisite stability in and control over their daily activities. Points of reference for understanding long-

term adherence among adolescents and young adults come from a range of studies, including those on oral contraceptive use to others on antiretroviral therapy (ART) adherence. Across these diverse areas, the unifying theme is that adhering to daily medication regimens poses a significant challenge for adolescents and young adults (Martinez et al., 2000; Murphy, Wilson, Durako, Muenz, & Belzer, 2001). For example, a study of ART adherence in perinatally infected adolescents in the United States showed that 25% of the participants were nonadherent (Rudy et al., 2006). Moreover, adherence is generally less consistent when medications are used as prophylaxis rather than treatment or cure (Stirratt & Gordon, 2008). With regard to PrEP specifically, adherence is likely to be limited by factors such as poorer linkages to health care (Siconolfi et al., 2013). Beyond these factors, little is known about YMSM attitudes toward maintaining adherence to a prophylactic agent. Thus, factors associated with adherence warrant more nuanced understanding and explanation because efficacy of PrEP will ultimately be related to medication adherence (Grant et al., 2010; Van Damme et al., 2012).

A second concern with PrEP adherence is the potential for an increased likelihood of engaging in risky behaviors due to risk disinhibition. Specifically, concerns have been raised that individuals on PrEP may engage in riskier sexual behaviors due to risk disinhibition (Blower & McLean, 1994; Cassell, Halperin, Shelton, & Stanton, 2006; Golub, Kowalczyk, Weinberger, & Parsons, 2010; Guest et al., 2008; Pinkerton, 2001). Prior studies examining awareness and intentions to use PrEP with sexual behaviors have provided largely inconsistent findings (Bauermeister et al., 2013; Mustanski et al., 2013). However, it is not clear how or why concerns around risk disinhibition in the context of PrEP use and adherence would emerge among a diverse group of YMSM. In addition, navigating PrEP adherence in the context of monogamous or steady relationships is understudied among YMSM. Consequently, further exploration of this relationship among racially/ethnically and socioeconomically diverse YMSM as well as by relationship status is warranted.

Third, the estimated cost of PrEP is between \$8,000 and \$14,000 per year in the United States (New York State Department of Health, 2012). As such, the role of cost as a potential barrier to uptake and long-term adherence to PrEP is a major concern (Currie, 2012). Given the combined effects of delays in seeking care, poor quality of care, and unstable insurance coverage, the realities of suboptimal adherence to PrEP among YMSM must be more thoroughly considered. Moreover, given the racial/ethnic disparities in HIV acquisition among YMSM of color and among those of lower SES backgrounds, cost as a barrier to adherence cannot be ignored.

In summary, despite the fact that the use of Truvada as PrEP has been approved since 2012, there is still a need for more qualitative information on the attitudes and perceptions toward PrEP acceptability, specifically in this new generation of YMSM. Further exploration with regard to the challenges that this new generation faces is warranted because YMSM continue to represent a highly vulnerable population with regard to acquisition and transmission of HIV (Hall et al., 2008). Moreover, there is a dearth of information on attitudes to PrEP uptake among racially/ethnically diverse YMSM; this is especially problematic because Black and Hispanic/Latino YMSM continue to bear a disproportionate burden of HIV infection in the United States (CDC, 2012c). Previous studies have

underscored the importance of understanding attitudes and perceptions regarding PrEP among potential PrEP users (CDC, 2012a; Gostin & Kim, 2011; Lampe, Smith, Anderson, Edwards, & Nesheim, 2011). In light of these factors, the objective of this study is to add to this knowledge by qualitatively delineating attitudes and perceptions toward the uptake PrEP as a risk reduction strategy among a diverse sample of YMSM.

METHODS

STUDY DESIGN AND SAMPLE CHARACTERISTICS

Data for the present PrEP study were obtained from semistructured interviews conducted during a standard follow-up visit for an ongoing study of YMSM. The main objective of the parent study, a prospective cohort study, was to observe the development of overlapping mental and physical health outcomes that coalesce to form a syndemic in a sample of racially/ethnically and socioeconomically diverse YMSM in New York City as they transition from adolescence into young adulthood. All study details of the parent study were described in detail in prior reports (Halkitis, Kapadia, et al., 2013). Briefly, the parent study recruited (by active means such as community events, pride events, and clubs, and passive means such as online notices) and enrolled 600 YMSM between the ages of 18 and 19 years old from May 2009 through July 2011. In order to be eligible for the study, potential participants had to be between 18 and 19 years old at the time of study entry, be biologically male, reside in the New York City metropolitan area, report having had sex with another man in the 6-month period before screening, and self-report a negative HIV serostatus. Racial/ethnic diversity of the P18 study sample was achieved by oversampling participants in targeted racial/ethnic groups. Consequently, Black, Hispanic/Latino, Asian/Pacific Islander, and multiracial men comprised the majority (86%) of the sample. After screening and baseline assessment, participants were scheduled to return every 6 months, up to 36 months, for a total of seven follow-up visits.

For the present study, participants enrolled in the P18 parent study were invited to take part in an additional assessment around PrEP at one of their already scheduled follow-up visits. Participants were recruited between February 2012 and November 2012. A total of 200 HIV-negative YMSM from the P18 cohort were invited to participate in the present PrEP attitudes study; all invited participants agreed to participate in this PrEP study. A purposive sample of 100 interviews was selected for the present analysis. None of the participants in the PrEP attitudes study were using PrEP at the time of the assessment. Purposive sampling is a nonprobability strategy that selects participants for systematic variation on sample characteristics related to an outcome of interest (Mays & Pope, 1995). Interviews were selected along two axes of diversity: (a) race/ethnicity and (b) knowledge of PrEP prior to the interview. Fifty percent of the analytic sample ($n = 50$) reported knowledge of PrEP before the interview. Quotas for race/ethnicity were established to reflect the distribution of the parent study population (15% Black, 38% Hispanic, 29% White, 5% Asian/Pacific Islander, and 9% mixed race). All participants provided informed consent to be part of the PrEP study. This study was reviewed and received human subjects approval by the New York University institutional review board.

DATA COLLECTION

A trained research study staff member conducted interviews for PrEP study during a regularly scheduled P18 study follow-up visit. Prior to the PrEP study interview, participants were provided with a description, including explanation of how to use PrEP as an HIV prevention strategy (see the Appendix). Interviews were semistructured and included both open- and closed-ended questions and lasted approximately 30 min. The interview included items geared toward understanding young men's perceptions around the utilization of PrEP. In addition, interviewers were trained to ask additional questions to further probe participant responses. Exemplary questions include: "Have you heard about PrEP?," "If as an HIV-negative man, you could take HIV medications to help prevent an HIV infection, would you be willing to do it?," and "Do you think you would still use condoms if you were taking this HIV prevention medication?" All the interviews were transcribed, coded, and analyzed using NVivo 10 software (Welsh, 2002).

DATA ANALYSIS

Interview transcripts were iteratively coded, sorted, and compared utilizing a thematic analysis (Boyatzis, 1998). The analytic process included (a) generating codes to be attached to similar quotation or topics across transcripts, (b) comparing and contrasting ideas related to the codes to create themes that fit the nature of the data, and (c) assessing the reliability of codes and themes by identifying positive and negative cases or qualifications. The analysis centered on identifying key issues related to young men's perceptions about PrEP as an HIV prevention strategy. Initially, investigators independently coded 30% of the transcripts ($n = 30$) and compared the results in a team approach until consensus was reached about the appropriateness of the codes and the nature of the emerging themes. During this process, memos were written to bring meaning to the data and document the analytic decisions. Then resulting themes were tested against the remaining 70 transcripts; incongruous and supporting evidence was examined using the raw data from interview transcripts to verify the characteristics and properties of the themes. Several strategies to ensure the scientific rigor of the analytic approach were used, including peer debriefing during the data collection and analysis phases of the study, independent and collaborative coding of transcripts, refinement of themes by examination of negative cases, and the use of memo writing to aid in the development of ideas as well as providing a decisional audit trail (Padgett, 2008).

RESULTS

Sociodemographic characteristics for participants in the PrEP study are summarized in Table 1. The mean age of the participants in this substudy was 20.2 years ($SD = 0.71$; median = 20; range = 18–21) at the time of the PrEP interview. The majority of the individuals in the sample were racial/ethnic minorities: 20% Black, 39% Hispanic, and 6% Asian/Pacific Islander. More than 80% identified as predominantly gay. Forty-seven percent of these participants perceived their socioeconomic status as middle class, and 76% were enrolled in school at the time of the assessment.

Three main content areas were examined in the interviews: (a) awareness of PrEP; (b) attitudes and concerns regarding PrEP; and (c) sociobehavioral influences on the

acceptability of PrEP. Within each of these broad content areas, a number of salient themes emerged.

AWARENESS OF PrEP

As noted, 50% of participants in the PrEP study were aware of PrEP prior to the interview and were able to explain that PrEP is a form of HIV prevention and not a complete treatment or cure for HIV infection. Participants also recognized that use of PrEP involved a daily regimen in which doses could not be missed. Finally, participants acknowledged that PrEP, by itself, was not 100% effective in preventing HIV infection. The following is an exemplary comment articulating these points:

I just know about Truvada; like people are taking it to prevent HIV. I guess it is not a 100% foolproof. It is not like take this medication, you will never get HIV, but it helps more than not taking anything, I heard. (Hispanic male, 21 years old)

Furthermore, several participants framed their understanding of PrEP by comparing it to birth control:

Um, well, I know it is just like a pill that you take, it is preventative, it is almost like birth control for HIV, so that is pretty much what I know. (Hispanic male, 21 years old)

Among participants who reported knowledge of PrEP, this information was obtained from a variety of sources such as the CDC website, Facebook, television reports/news, information obtained from community health agencies, and friends, and from doing their own, independent research. Despite having prior knowledge about PrEP, participants still expressed hesitation about using PrEP as evidenced by the following:

Um, I mean how new this is? I would be a little hesitant because I would wonder how much this medication is like exposing me to the virus. Like could this go wrong? Could I end up just with HIV because I have been taking this medication? (White male, 21 years old)

Irrespective of prior knowledge of PrEP, the majority of participants in this study expressed a desire for more information about PrEP:

Um, but the only thing before I agree to do such a thing [take PrEP], I would have to do research, get the name of the medicines, see what the ingredients, active ingredients are, see what the side effects could possibly be, you know, just so I could like get myself prepared, for like what to expect. (Hispanic male, 21 years old)

Last, when further queried on their awareness of PrEP, participants posed a number of questions, including: What are the short- and long-term side effects? Which medications are used? What are the active ingredients? What are the odds of contracting HIV if you are on it and you become exposed to HIV? Does the medication itself give you HIV?

ATTITUDES TOWARD UPTAKE OF PrEP

Participants in the present study expressed a range of views and attitudes toward PrEP. After receiving a brief explanation of PrEP, a number of men in this study articulated positive attitudes toward the adoption of PrEP. Moreover, they considered PrEP to be one of a range of strategies, including condom use, to protect against HIV acquisition as evidenced in the following statement:

A condom just does not do enough. You wear a condom and you still have that feeling of not being safe, so if you can have that other source of help to protect yourself, then I agree with it. Especially with gay men, definitely. (Black male, 20 years old)

On the other hand, participants noted that using a condom consistently would be easier than remembering to take a daily medication. For some men, using a condom consistently was considered to be equally as effective, if not more effective, as taking daily PrEP:

It's not even like more than what, was it like 80% or 90% effective at blocking the virus, whereas like a condom is like way better, so I mean if I'm going to have protected sex, then I'd rather just use a condom than worrying about taking a pill which I would have to take regularly anyways, spend a lot of money on... just not worth it. (White male, 21 years old)

Moreover, maintaining adherence to the daily PrEP medication regimen was a concern that repeatedly arose during interviews:

I think it's extremely important to stress the fact that usage has to be continuous; it's not, you miss a whole week and then you go have sex and you're like, "Oh my God! I ended up with HIV!" No, no, that is on you. I think it's very important to showcase that continuous use of it is 100% enforced. (Black male, 20 years old)

In addition, participants suggested that adhering to a daily regimen of oral PrEP could be difficult to sustain over the long term. This, in turn, led to concerns around the possibility of missing doses of PrEP and thus being back at a heightened risk for HIV acquisition. In addition, developing immunity to PrEP and related HIV medications as well as the potential for side effects signaled that there is still a widespread lack of knowledge around the mechanisms of action for this medication.

I am always very wary of new things in the medical field because I feel that things show benefits in the short term and then sometimes as time goes on we see negative side effects. I feel ... I just wouldn't be willing to take that risk personally. (White male, 20 years old)

Finally, cost was a salient concern around the logistics and feasibility of PrEP uptake. Although the costs of sustained PrEP use are high, the concerns around cost were most often voiced by YMSM of color. In particular, participants of color felt that PrEP would be most beneficial for White YMSM because racial minorities, particularly those from low SES backgrounds, would have neither the financial resources nor the health care service resources to provide access to PrEP:

I have a feeling that a lot of white gay guys are doing this, but someone who is not White or rich, I don't really.... The people in my life don't have these resources to fuck around, so no. (Hispanic male, 20 years old)

SOCIOBEHAVIORAL INFLUENCES ON PrEP ACCEPTABILITY

Multiple sociobehavioral influences on the acceptability of PrEP were identified in this sample of YMSM. First, study participants often associated going to parties with drug and alcohol use that, in turn, could lead to sex without a condom. Given the overlapping nature of sexual and drug use behaviors, most men noted that PrEP would provide a means to avoid having to rely on successfully negotiating condom use under the influence of substances:

You never know if at a party something happens.... You end up drunk and end up having sex with someone you just met, you never know, so it would be nice to have at least that sort of confidence. That it's more, it's less likely for anything to have happened. (Hispanic male, 20 years old)

In addition, participants noted that their use of PrEP could provide a justification for not using a condom:

I feel that with people knowing, oh, I'm going to take this pill once per day, I could go ahead and have sex raw, you know, that might cause an issue. (Black male, 20 years old)

While other participants explicitly expressed the desire to engage in sex without a condom as a motivator for the adoption of PrEP,

Sometimes it happens that [sex] isn't protected, and I guess, possibly if I am taking PrEP or whatever it would be, it would make a little bit okay in my mind to not use as much protection. (Hispanic male, 21 years old)

However, participants also noted that the consequences of engaging in unprotected sex while using PrEP could lead to labeling and stigmatization in the YMSM community as well. Consequently, a commonly cited hesitation to PrEP uptake was the perception that PrEP was considered a prevention strategy for individuals who engaged in high-risk sexual behaviors or more frequent casual sexual encounters and therefore would not be appropriate for those who were not engaging in such behaviors:

I don't feel like I'm at risk enough or I put myself at risk enough to be like a prime candidate for this. (Hispanic male, 21 years old)

Finally, relationship status was another often-invoked reason for a lack of interest in using PrEP. Participants in relationships with a steady partner reported having sex without a condom with their main partners. Therefore, these men believed that introducing PrEP into these relationships contexts would not be appropriate or even possible given the trust and fidelity already established with their main partners. Furthermore, raising the issue of PrEP would undoubtedly signal that there was a lack of trust and the possibility that one or both partners were likely to have sex outside of the main relationship:

I'm in a committed relationship and we're under the understanding that we're faithful to each other and that we're both HIV negative, so were not as careful. So,

for that reason I think that preventing HIV is already kind of done at that point. If I would use PrEP, it would raise questions. (Asian/Pacific Islander, 19 years old)

Despite these perceptions, participants also thought PrEP would be a good idea even in monogamous relationships because they might not know if their partner was having sex outside of the relationship and using a condom during those instances:

The only time I ever considered not wearing condoms was in a monogamous relationship; we had both been tested. I think PrEP would be a good thing at that point 'cause, you know, you never know how monogamous it really is [laughs]. (Mixed race male, 20 years old)

DISCUSSION

In this qualitative exploration of attitudes around uptake and adherence to PrEP, we found a diverse range of themes that exemplified the beliefs and concerns of a racially/ethnically diverse group of sexual minority youth that are reflective of the current conversations and debates within the gay community as well as those that are playing out in the popular press (e.g., Fitzsimons, 2014; Halkitis, 2014). First, even among those who were aware of PrEP prior to this study, there was an incomplete understanding of what PrEP is, how it acts to prevent HIV acquisition, and its potential short- and long-term side effects. This lack of awareness, coupled with misunderstanding of PrEP, may seriously jeopardize the potential for PrEP to be realized as an effective HIV prevention strategy. In particular, it may have limited impact among YMSM of color who may be less exposed to PrEP facts and information and access to such knowledge, yet are a group who would benefit most from a wider range of prevention options. More PrEP information on social media platforms that cater to, or are more likely to be frequented by, YMSM of color is strongly warranted. In addition, community organizations that provide outreach and social support services to YMSM of color ought to be equipped with materials in multiple formats, languages, and so forth that can convey to a wider audience the potential benefits of PrEP. Such approaches are also appropriate for this generation of millennials, who rely more so than previous generations on e-technologies for information (Kingdon et al., 2013).

Second, attitudes toward the uptake of PrEP distinctly varied according to the race/ethnicity of participants in this study. In summary, white YMSM tended to be more circumspect about PrEP, especially with regard to its efficacy as a stand-alone HIV prevention tool. Although approved by the FDA in 2012, the relative recency of PrEP rollout and lack of “historical evidence” to serve as proof of its effectiveness in community settings (beyond trial efficacy) were called into question by White YMSM in this study. This last sentiment was further expressed by participants who felt that condoms were a more effective choice for HIV prevention. It is interesting to discover this belief given that this younger generation of YMSM tends to be earlier adopters of new technologies and practices. However, the need for daily adherence to this “new technology” is likely to be a driver of the dampened attitudes toward PrEP uptake in this group. These findings call for novel methods to highlight the advantages of PrEP in this new generation of YMSM in the context of the broader range of HIV prevention strategies. Without such an effort, the association of PrEP with a daily medication burden will undoubtedly reduce the likelihood of its use.

In addition, it is important to note that Black YMSM in this study were more likely to voice positive or supportive attitudes around PrEP uptake. Almost in contrast to the views noted by the White YMSM in this study, Black YMSM were more likely to view PrEP as an added benefit to other types of HIV prevention, specifically condom use. The need to ensure that protection was as effective as possible was of key concern—and if this meant that condoms in addition to PrEP ought to be used, then that was seen as an added layer of protection. This attitude may be a reflection of the heightened prevalence and incidence of HIV among black YMSM in New York City and across the United States. These findings suggest a valuable opportunity to reach out to communities of color to bolster messaging around PrEP as one tool that is part of a wide range of HIV prevention strategies. This could prevent the loss of the potentially positive response to PrEP utilization that could have a significant impact on reducing HIV burden in these communities. It is important to note that this finding also appears to run counter to some traditions that indicate distrust of the medical community by African Americans (Armstrong et al., 2008).

However, even the positive views toward PrEP uptake may likely be challenged by a number of behavioral and structural barriers to accessibility and adherence. First is the high cost associated with PrEP, a concern that was noted by participants, irrespective of race/ethnicity, in this study. Not only does the issue of cost diminish the accessibility of PrEP but it will also undermine the ability to maintain long-term adherence to PrEP among those at greatest risk for HIV acquisition and transmission. Next, the associated costs of PrEP use must also be considered. These include, for example, regular HIV screenings, doctor visits, and multiple tests to monitor side effects and other outcomes. Thus, the need to consider mechanisms to ensure the affordability of PrEP for a socioeconomically diverse population of young men for whom health insurance coverage may not be adequate or consistent cannot be ignored. Although this approach to prevention may be covered by health insurance, it is important to note that even a copay may be an economic burden to a new generation whose finances are limited partially as a result of the current weak financial climate and high job insecurity, a situation that may be even more pronounced for young Black gay men, who could most benefit from PrEP uptake.

Next, in addition to concerns around daily adherence are concerns with maintaining the required clinical monitoring schedule for potential side effects as barriers to PrEP utilization. First, prior studies have found that among the reasons adolescents miss ART doses are difficulties associated with adhering to a daily pill schedule (MacDonnel, Naar-King, Murphy, Parsons, & Harper, 2010) and adjusting to changes in daily routines that can support such a schedule (Belzer, Fuchs, Luftman, & Tucker, 1999). Lessons from the treatment cascade indicate that even those living with HIV struggle with adherence to treatment and care (CDC, 2012b), and thus this issue should be given very careful consideration. With regard to clinical monitoring of side effects, outcomes from a recent PrEP trial indicate no significant short-term biomedical safety issues among HIV-negative MSM (Grohskopf et al., 2010). Nonetheless, participants voiced concerns about the long-term effects of the regimen; and to date, there is no data from PrEP trials on the possible issues or side effects associated with long-term use of PrEP.

A third barrier to the successful effectiveness of PrEP is that a number of participants expressed the potential for behavioral disinhibition and risk compensation if they or their partners were using PrEP. Concerns regarding behavioral disinhibition and risk compensation are based on the possibility that use of PrEP could foster an overly optimistic sense of protection among users that could lead to increased sexual risk taking (Blower & McLean, 1994; Cassell et al., 2006; Golub et al., 2010; Guest et al., 2008; Pinkerton, 2001). Our findings seem to support this notion as study participants noted that a motivation for adopting PrEP would be the ability to engage in sex without a condom. This finding is supported by prior evidence suggesting that the lower perceived transmission risk associated with the uptake of ART regimens may lead to increases in sexual risk taking among MSM (Crepaz, Hart, & Marks, 2004; Elford, 2006). Moreover, the potential combination of inadequate PrEP adherence and increased sexual risk taking may place YMSM at an increased risk for HIV acquisition and transmission.

Finally, and perhaps most importantly, a significant theme that emerged around acceptability of PrEP uptake among these young men was relationship status. Irrespective of race/ethnicity, participants in a romantic relationship were less likely to express positive attitudes toward the adoption of PrEP, despite reporting unprotected sexual behaviors with these partners. This is unsurprising because the use of PrEP may raise issues of trust and fidelity that young men are unwilling or unable to successfully navigate in the context of a relationship. In particular, these issues may be more difficult to broach with partners who are older or in relationships where one partner has less agency or power to negotiate sex with a condom or other HIV prevention strategy. Thus, intensified efforts to teach negotiation skills within the context of primary relationships are certainly warranted, especially in light of the elevated rates of condomless sex noted in the context of relationship for YMSM (Halkitis, Wolitski, & Millet, 2013) and the high rates of HIV transmission within these dyads for MSM in general (Sullivan, Salazar, Buchbinder, & Sanchez, 2009). This need is supported by two key findings. First, a recent study of young gay and bisexual men that found that the majority of men in that study largely aspired to have long-term relationships in the future, with over half expecting these relationships to be monogamous (D'Augelli, Rendina, Sinclair, & Grossman, 2008). However, recent estimates also indicate that more than two thirds of gay men acquire HIV from their main sexual partners while in a relationship (Sullivan et al., 2009).

These findings should be interpreted within the context of study limitations. First, not all the YMSM in this sample were at high risk for HIV; in fact, some participants were in monogamous relationships and reported using condoms consistently with their partners. The CDC's (2012a) recommendations emphasize the use of PrEP among adults at very high risk for HIV infection through sex. However, some YMSM start engaging in sexual risk taking and substance use at the average age of our sample; thus, examining their attitudes independently of their sexual risk behaviors may provide valuable information on PrEP utilization likelihood and patterns. Second, at the time of this interview, participants were enrolled in the parent cohort study for approximately 2 years on average. Thus, it could be that these young men may have a better understanding of extant HIV prevention strategies and this may influence their views toward PrEP uptake and utilization. In addition, participants who learned about PrEP prior to this study interview may not have been able to

comment meaningfully on this HIV prevention strategy. Providing a description of PrEP and providing participants with the opportunity to ask questions prior to the interview may have lessened this potential limitation. Finally, there is the potential for socially desirable responding because this assessment was administered by interviewers. However, given the detailed description of both the advantages and the disadvantages of PrEP, this concern is minimized.

CONCLUSION

As underscored by PrEP trials (Grant et al., 2010; Van Damme et al., 2012) and as shown in this study, the uptake of PrEP may be directed by a range of individual/psychological, contextual/relationship, and structural drivers. Consequently, the future of PrEP as an effective and widely used HIV prevention strategy will be realized only if PrEP availability programs are nested within comprehensive HIV prevention efforts. Such efforts should fully address biomedical, behavioral, and social conditions that increase the risk of communities disproportionately affected by HIV (Halkitis, Wolitski, & Millet, 2013). Moreover, programs delivering PrEP ought to acknowledge that HIV may not be the primary concern or worry for many YMSM, despite epidemiological evidence to the contrary. Thus, prevention strategies must consider competing interests and challenges faced by these young men and situate PrEP as an HIV prevention approach within the larger contexts of these young men's lives.

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APPENDIX

DESCRIPTION OF PrEP AND ITS USE AS A PREVENTION STRATEGY

A recent study has shown that some HIV-negative men taking a daily dose of HIV medications, and who regularly take their dose, are less likely to contract HIV. This is known as PrEP (Pre-Exposure Prophylaxis). In that study, men who took the medication 90% of the time reduced their risk of HIV infection by 73%. Those who took less than 90% of their doses reduced the risk of infection by only 21%. Men in the study were also counseled, given condoms, and encouraged to use them. PrEP is still being studied; however, you can speak with your health care provider to see if this might be an appropriate prevention measure to use.

TABLE 1

Key Socioemographic Characteristics for Study Participants

Participant characteristics	% (n = 100)
Age (mean, standard deviation)	20.2 (0.71)
Race/ethnicity	
Black	20
Hispanic	39
Asian/Pacific Islander	6
White	22
Mixed race	12
Other	1
Perceived socioeconomic status	
Low	10
Lower-middle	30
Middle	47
Upper middle	11
High	2
Sexual identity	
Gay	81
Bisexual	10
Straight	1
Queer	6
Transgender	1
Other	1
Educational attainment	
Less than high school	2
HS diploma/GED	23
Some college	70
College degree or more	5
Current school status	
In school	76
Not in school	24